NOTICE OF ALLOWANCE AND FEE(S) DUE

24203	7590	07/23/2009

GRIFFIN & SZIPL, PC
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2300 NINTH STREET, SOUTH
ARLINGTON, VA 22204

EXAMINER
CASANOVA, JORGE A

ART UNIT	PAPER NUMBER
2159	

DATE MAILED: 07/23/2009

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,043	07/01/2008	Shinji Furusho	YOSHID0028	3387

TITLE OF INVENTION: METHOD FOR HANDLING TREE-TYPE DATA STRUCTURE, INFORMATION PROCESSING DEVICE, AND PROGRAM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	10/23/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

Page 1 of 3

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: <u>Mail</u> Mail Stop ISSUE FEE
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Alexandria, Virginia 22313-1450
or <u>Fax</u> **(571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

| 24203 | 7590 | 07/23/2009 |

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Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

	(Depositor's name)
	(Signature)
	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,043	07/01/2008	Shinji Furusho	YOSHID0028	3387

TITLE OF INVENTION: METHOD FOR HANDLING TREE-TYPE DATA STRUCTURE, INFORMATION PROCESSING DEVICE, AND PROGRAM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	10/23/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
CASANOVA, JORGE A	2159	707-100000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE   (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:
❑ Issue Fee
❑ Publication Fee (No small entity discount permitted)
❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
❑ A check is enclosed.
❑ Payment by credit card. Form PTO-2038 is attached.
❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)
❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.   ❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____   Date _____

Typed or printed name _____   Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.   OMB 0651-0033   U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
CASANOVA, JORGE A

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DATE MAILED: 07/23/2009

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

	Application No.	Applicant(s)
Notice of Allowability	10/599,043	FURUSHO, SHINJI
	Examiner	Art Unit	
	JORGE A. CASANOVA	2159	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *04/21/2009 and 07/06/2009*.

2. ☒ The allowed claim(s) is/are *15-19, 32-36 and 49-53 (renumbered as 1-15)*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a) ☐ All   b) ☐ Some*   c) ☐ None   of the:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

     * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

     (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

     (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of
        Paper No./Mail Date _____ .

     Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☒ Information Disclosure Statements (PTO/SB/08),
     Paper No./Mail Date *07/01/2008*

4. ☐ Examiner's Comment Regarding Requirement for Deposit
     of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413),
     Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☐ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

/JORGE A CASANOVA/
Examiner, Art Unit 2159

/James Trujillo/
Supervisory Patent Examiner, Art Unit 2159

DETAILED ACTION

Election/Restrictions

1.   Claims 2, 7, 9, 11-14, 20, 24-26, 28-31, 37, 41, 43, 45-48 and 54 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on April 21st, 2009.

2.   Per Telephonic interview communication held on June 29th, 2009, claims were amended per Supplemental Amendment to the claims filed July 6th, 2009 by the Applicant.

Information Disclosure Statement

3.   The information disclosure statement (IDS) filed on 07/01/2008 has been considered by the Examiner and made of record in the application file.

Prior Art Made of Record

4.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- ❖ Chi et al. teaches usage based methods of traversing and displaying generalized graph structures. Specifically, the prior art teaches a method for generating a tree structure representation of a generalized graph structure for display includes the more important links in the representation. Usage parameters are referenced in generating the tree structure from the generalized graph structure. Frequency, recency, spacing of accesses, and path information are exemplary types of usage parameters. A breadth-first or

depth-first traversal of the graph references usage parameters associated with each node or link. The usage parameters which are associated with each node are referenced in order to determine the visitation order. The visitation order is determined by visiting the highest used nodes or links first. A method of displaying the tree structure references the usage parameters to determine the positioning of the nodes in the layout of the tree structure. In a preferred embodiment, the root node is positioned in the center of the layout. In one example, sibling nodes are spread out on links which emanate radially about their parent. The highest-used sibling nodes can be placed farthest apart from each other so as to achieve optimal separation so that they have the most growth space. The lowest-used nodes are then placed in the remaining space between the high-usage nodes. In another example, sibling nodes are positioned at the same radius from the root node. Each leaf node in the hierarchy is assigned the same amount of angular space. The layout angle of each node is a function of the ranking of the node's usage parameter relative to its siblings. Derived usage parameters such as need probability, cocitation clustering, or functions of both node and link usages can alternatively be referenced. The prior art of record does not teach or fairly suggest the amended features of the instant application as recited, *Infra*.

❖ Barnes teaches a method and system for partial-order analysis of multi-dimensional data. Specifically, the prior art teaches a method and system for performing data analysis where multiple, categorical dimensions and

statistical measures are used. The method includes preparing multi-

dimensional data into nodes and arranging them logically in the form of a

partial-order database. The database may then be traversed by a data-mining

tool, or queried in an OLAP manner. Queries are answered through a process

of associative partial-order search, which includes optional support for

"children-of" requests, and optional support for fuzzy pattern-matching. By

aggregating measures on-the-fly, this method is able to preform well without

requiring a large number of summary nodes, when taken as a percentage of

the total node count. The prior art of record does not teach or fairly suggest

the amended features of the instant application as recited, *Infra*.

❖ Nishio teaches a Traversal method of processing tree structure information

and apparatus using the same. Specifically, the prior art teaches a traversal

method having a memory for storing tree structure data having nodes, each

node including an attribute indicating a traversal stage in the tree structure in

which an evaluation result of an attribute corresponding to the traversal state

of each node of the tree structure data is stepwise arranged according to a

depth-first order in the memory in a sequential fashion, the memory including

two memories. In this method, the system recognizes as a sub-tree a group of

nodes which have a same kind and which are linked with each other,

sequentially arranges, during a traversal of a root of the sub-tree, symbols

indicating an initiate position of the sub-tree and an end position thereof, and

a symbol indicating an intermediate position of the sub-tree in a first memory.

The system copies, while searching a series of data thus sequentially arranged for each kind, the initiate symbol, the intermediate symbol, and the end symbol of the sub-tree not belonging to the kind onto second memory. When the initiate symbol of a sub-tree belonging to the kind is detected, an activation of a traversal of the sub-tree is indicated, and when the intermediate and end symbols are detected, a reactivation of a traversal of the sub-tree is indicated. In response to the indication, a traversal of the sub-tree belonging to the kind is executed so as to develop an attribute of the sub-tree in the second memory. The prior art of record does not teach or fairly suggest the amended features of the instant application as recited, *Infra*.

❖ Nakatsuyama teaches a document retrieving object instructing apparatus. The prior art of record does not teach or fairly suggest the amended features of the instant application as recited, *Infra*.

❖ Kato teaches a neural network for providing hints to problem solving apparatus using tree search method. Specifically, the prior art teaches a problem solving unit obtains a solution in a symbol process in response to a given problem. A neural network learning control unit makes a neural network unit perform a learning process on a solution output from the problem solving unit. After completing the learning process in response to the given problem, the neural network unit provides an output as a hint on solving the problem to the problem solving unit. The prior art of record does not teach or fairly suggest the amended features of the instant application as recited, *Infra*.

❖ Downey teaches a method and apparatus for event simulation. Specifically,

the prior art teaches a method and apparatus for inserting an event into a

simulation time queue, wherein the simulation time queue is represented by a

tree structure having a top node which represents the total number of "time

slices" to be simulated, intermediate nodes representing subsets of time

slices within the total number of time slices to be simulated, and event

locations representing events to be simulated. A time slice is defined to

represent a minimum resolvable time period within the simulation. The

method includes the steps of choosing a starting node within the tree

structure, designating it as the current location, determining whether the

current location is an intermediate node representing a range of time slices of

which the time slice of the event to be inserted is a subset, determining, if the

current location is such an intermediate node, if any existing child nodes of

said current location are event locations, and if so, adding the event to the

proper event location of said current location. The prior art of record does not

teach or fairly suggest the amended features of the instant application as

recited, *Infra*.

❖ Garger et al. teaches a hybrid tree array data structure and method.

Specifically, the prior art teaches a method and apparatus for storing and

accessing data. The preferred embodiment hybrid tree-array database

provides the ability to perform fast searching using tree database search

techniques and the ability to search all user data fields using array search

techniques. In particular, fast key searching as a typical tree database and

sequential array searching of all data fields as a typical array database are

provided in a single database, without requiring the user data be duplicated

and stored in two separate databases. Thus, the preferred embodiment

provides searching flexibility without the excessive storage requirements and

complexity inherent in managing separate array and tree databases. The

preferred embodiment also provides the advantage of allowing individual

users of the database to search the data using either tree or array search

techniques without requiring any detailed knowledge of the dual nature of the

hybrid tree-array database. The prior art of record does not teach or fairly

suggest the amended features of the instant application as recited, *Infra*.

❖ Krishnaswamy teaches Spatial index compression through spatial subdivision

encoding. Specifically, the prior art teaches a technique for reducing the total

storage used in representing data having spatial extents. The data is

represented in a tree structure having a plurality of nodes, wherein each of

the nodes has parent and child relationship to one or more others of the

nodes in the tree structure. An encoded representation of the relation of a

child node's extents with respect to its parent is stored in the node. A preorder

traversal of the tree structure is performed to store it compactly in an output

file. The prior art of record does not teach or fairly suggest the amended

features of the instant application as recited, *Infra*.

❖ Solomon et al. teaches method of using primary and secondary processors.
Specifically, the prior art teaches compilation of source code to a primary and
a secondary processor. The method relates to reconfigurable secondary
processors, and is especially relevant to secondary processors which can be
reconfigured to some degree during execution of code. Selective extraction of
dataflows from the source code is followed by transformation of the extracted
dataflows into trees. The trees are then matched against each other to
determine minimum edit cost relationships for transformation of one tree into
another, where these minimum edit cost relationships are determined by the
architecture of the secondary processor. A group or a plurality of groups of
dataflows is determined on the basis of said minimum edit cost relationships
and for each group a generic dataflow capable of supporting each dataflow in
that group is created. The generic dataflow or dataflows is then used to
determine the hardware configuration of the secondary processor; and calls
to the secondary processor for said group or plurality of groups of dataflows
are substituted into the source code. The resultant source code is compiled to
the primary processor. The prior art of record does not teach or fairly suggest
the amended features of the instant application as recited, *Infra*.

❖ Uppala teaches architecture for managing query friendly hierarchical values.
Specifically, the prior art teaches an architecture for managing query friendly
hierarchical values contains a data structure having node value entries for
node values that make up the hierarchical values, hierarchical value entries

for the hierarchical values expressed in terms of node value identifiers found in the node value entries, and hierarchy parent entries for parent-child pairs of hierarchy values. A node value entry contains a node value, a node hash value generated from the node value by a first hashing algorithm, and the node value identifier. The node hash value defines the node value entry in which the corresponding node value is stored. The hierarchical value entry contains a hierarchical value represented by the node value identifiers that correspond to the node values that make up the hierarchical value. The hierarchical value entry also contains a hierarchical value hash value derived from the node value identifier representation of the hierarchical value using a second hashing algorithm and a hierarchical value identifier. The hierarchical value hash defines the hierarchical value entry in which the corresponding hierarchical value is stored. A hierarchy parent entry contains the hierarchical value identifier for the parent hierarchical value and the hierarchical value identifier for the child hierarchical value. The hierarchy parent entry also contains a depth value representing the distance in nodes between the parent hierarchical value and the node in the child hierarchical value that is furthest from the parent. The prior art of record does not teach or fairly suggest the amended features of the instant application as recited, *Infra*.

❖ Agarwal et al. teaches a depth first method for generating itemsets. Specifically, the prior art teaches a system and method for generating itemset associations in a memory storage system comprising many transactions, with

each transaction including one or more items capable of forming the itemset

associations. The method involves generating a lexicographic tree structure

having nodes representing itemset associations meeting a minimum support

criteria. In a recursive manner, for each lexicographic least itemset (node) P

of the lexicographic tree structure, candidate extensions of the node P are

first determined. Then, the support of each of the candidate extensions is

counted to determine frequent extension itemsets of that node P, while those

itemsets not meeting a predetermined support criteria are eliminated. Child

nodes corresponding to the frequent extensions and meeting the

predetermined support criteria are created. For each frequent child of node P,

all itemset associations for all descendants of node P are generated first.

Thus, the lexicographic tree structure is generated in a depth first manner. By

projecting transactions upon the lexicographic tree structure in a depth-first

manner, the CPU time for counting large itemsets is substantially reduced.

The prior art of record does not teach or fairly suggest the amended features

of the instant application as recited, *Infra*.

❖ Rubin et al. teaches a technique of clustering and compaction of binary trees.

Specifically, the prior art teaches a technique for improving the performance

of binary tree operations involves defining an implicit binary tree structure in a

memory array, and clustering of the nodes of the tree in memory in a cache-

aware manner. The technique reduces memory latency by improved spatial

locality of the binary tree data, and further improves cache performance

through reduced size of the data objects resulting from elimination of pointers to other nodes of the tree. The prior art of record does not teach or fairly suggest the amended features of the instant application as recited, *Infra*.

❖ Nicolaou et al. teaches a method and system for artificial intelligence directed lead discovery through multi-domain clustering. Specifically, the prior art teaches a system for analyzing a vast amount of data representative of chemical structure and activity information and concisely providing conclusions about structure-to-activity relationships. A computer may adaptively learn new substructure descriptors based on its analysis of the input data. The computer may then apply each substructure descriptor as a filter to establish new groups of molecules that match the descriptor. From each new group of molecules, the computer may in turn generate one or more additional new groups of molecules. A result of the analysis in an exemplary arrangement is a tree structure that reflects pharmacophoric information and efficiently establishes through lineage what effect on activity various chemical substructures are likely to have. The tree structure can then be applied as a multi-domain classifier, to help a chemist classify test compounds into structural subclasses.

Allowable Subject Matter

Reason for Allowance

5.   Claims 15-19, 32-36 and 49-53 are allowed.

6.   The following is an examiner's statement of reasons for allowance:

The prior art made of record do not teach or fairly suggest the combination of elements as recited in the amended independent claims.

7.   Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Remarks

8.   The Applicant has appropriately amended the Claims in response to the telephonic interview communication held on June 29th, 2009, thus, obviating the claims from non-statutory rejections.

Conclusions/Points of Contacts

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JORGE A. CASANOVA whose telephone number is (571) 270-3563. The examiner can normally be reached on Mon. - Fri., 7:15 a.m. - 5:45 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James K. Trujillo can be reached on (571) 272-3677. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JORGE A CASANOVA/   /James Trujillo/
Examiner, Art Unit 2159   Supervisory Patent Examiner, Art
                                                      Unit 2159